Feasibility Study of Logical Connectors and Extensions in Houston Bikeway Program

------ The Accessibility to Memorial Park from South

By the end of this year, the City of Houston will have an upgraded bikeway network in the length of 380 miles. This city-wide, on-street and off-street network will provide more choice of transportation opportunities for non-motorized travel and help the City of Houston to meet the goals in recreation, raise the quality of community life and reduce air pollution.

For a long time, motorized travel has been the dominant mode of transportation in Houston. Many streets and the areas in town are not designed for bicycling and pedestrian travel. Now more and more people in older or in new neighborhoods are beginning to appreciate well-designed bikable, walkable streets in their residential and surrounding area. People enjoy bicycling and walking and believe increased levels of bicycling and walking would result in significant benefits in terms of health and physical fitness, the environment, and transportation-related effects.

The current Houston bikeway primarily consists of bike lanes, bike routes and multi-use trails. It is one of the city's operating transportation systems and serves a variety of functions for transportation and recreation. It also meets the needs of bicyclists, and pedestrian traveler in the Houston area.

Bike lanes are desired in many urban locations, and are also a preferred facility type in America. There are three options to set a bike lane on existing street: widening the street, decreasing the number of vehicle lanes or reducing the width of vehicle lanes. However, finding the proper width for setting a bike lane is often difficult.

Bike route is designated wide bike and motor vehicle lane and is different with bike lane. Vehicles and bicycles ride side-by-side. The bike route may be an existing roadway, street with wide curb lanes, or a road with paved shoulders.

The multi-use trail is open to bike riders, walkers, joggers and almost all types of users of all ages and abilities. It is an off-road facility, separated from vehicle traffic. The multi-use trail can be around a park, along a bayou and a green space, and also converted rail to trail.

This paper will be used to develop the study to identify logical connectors, vision ideas, give effort to research their feasibility and the related impacts, as well as their benefits. According to the City of Houston Comprehensive Bikeway Plan, the objectives of the ongoing Accelerated Bikeway Program, and based on the current bikeway network and referenced requests from citizen, an area that has the propriety in improvement of accessibility and continuity will be selected.

An area around Memorial Park (MP) is selected as study area, because the current accessibility to MP, especially from south is highly limited. In this area there are increased demands for trails and local accessibility, as well as the improvements of network functions. The purpose of this feasibility study is to outline the extensions that can be potentially as new bikeway in network.

The development of Houston Bikeway Network is not balanced in different regions and areas. In a large area west of downtown, the bikeway network is separated into south and north parts by Buffalo Bayou. So in this large area, the network can not provide the opportunity for bicyclists to make travel in south-north direction. The location of MP is just between the south and north parts. As a consequence, there is also no accessing ways

to MP from south and north. MP is the largest park in the Houston urbanized area. It is very valued, because this green place is located in a congested area, which concentrated residential, commercial and employment neighborhoods and different facilities. The interesting points, the recreational facilities that are in and around MP attract all ages of people. Citizens sent their requests to the City of Houston for the improvement of accessing to MP and wrote, “They have numerous reasons to ride there.” MP is an ideal place for people doing outdoor activities.

The park’s south boundary is Buffalo Bayou, the north boundary is the I-10 and the 610 freeway passes its west boundary. Only its east boundary is opened to the streets, which lead into residential area. Currently, the most accessing possibilities to MP are in its east boundary and driving. Except the proposed bikeway that is through MP in east-west direction, so far, there is no way for bicyclists directly to ride into MP (See Figure 1).

The current situation for bicyclist to access MP is not so optimistic and friendly. To improve the accessibility, enhance the network functions, in this study the suggested extensions are based on conditions of existing streets, current bikeway network and the concept “Rails with Trails”. The analysis is emphasized accessibility from the south of MP. Followings are the suggestion of accessing ways.

Suggestion 1: From existing bikeway on Inwood to Westcott Street.

The extension begins from an existing bikeway on Inwood @ Lazy Lane, along Lazy Lane to its dead end. From there a new route need design and construction to make a connection to the proposed bikeway on Westcott.

This new extension is approximately 6000 ft in length and includes about 1100 ft new constructed route and a pedestrian bridge over the Buffalo Bayou.

Suggestion 2: From existing bikeway on Weslayan to S Picnic Ln in MP.

The second extension begins from the bikeway on Weslayan @ Inwood, along Willowick, to Pine Hill and finally to its dead end. From this point a new route needs to be designed and constructed making a connection to S Picnic Ln, then along S Picnic Ln to the proposed bikeway on Memorial Dr. in MP.

This new connector would be approximately 5500 ft in length including 900 ft of new constructed road and a new pedestrian bridge over Buffalo Bayou.

Suggestion 3: A trail alongside the rail line throughout MP.

According to the concept Rails with Trails, this suggestion is to utilize the advantages of railroad building a shared use trail adjacent with rail line. Although building trails alongside active rail lines in many other states is common and a successful type of multi-used trail, it has not been applied in the Houston area.

The existing rail line is throughout MP in south-north direction. In the heart of MP, the rail line meets the proposed bikeway on Woodway. This is a good option when there difficulty finding available land to build trails in MP and it will double the value of the land. The suggested extension begins from the rail crossing on San Felipe Street (or other point along the rail), continues along the rail line over Buffalo Bayou to the Woodway and connects the proposed bikeway. The length is approximately 3 miles. From the crossing point with Woodway, the suggested extension can be continuously along the rail to the north or split to Memorial Dr. and other roads in MP. In addition, from the beginning point of the suggested extension in San Felipe, there are still two options to

connect existing bikeway on Yorktown and Weslayan. This suggestion using the advantages of rail line can easier obtain more potential chances to improve accessibility in the local area and have other potential contributions to enhance the network.

All three suggested extensions are expanded from the south into MP and would improve the accessibility to MP. All of them also have a good chance to connect existing bikeways. These suggested extensions will first connect with south and north parts, and this integration will significantly improve the continuity of the network. It will be beneficial for local non-motorized travel, reduced trip length, delays, provide more choices to access MP and help bicyclists crossing the physical barriers. It will have the positive influence to maximize use, minimize delay, and promote potential users in this area and in the whole network.

All suggested extensions will connect well with existing bikeway networks in deferent locations, and pass residential, commercial, employment and recreational areas. In its laying areas, the extensions bypass schools, museums, interesting points, and bike racks. It will promote economic development. This will provide an economic boost to the communities through which they pass. Bicyclists, pedestrians and trail users will patronize restaurants, general stores, rental stores and gas stations. It is expected that new extensions of bikeways or routes will be beneficial for business. Finally, it leads to increase tourism and sales, which generate employment. For residents, students and commutes, it will reduce travel distance and time.

These suggestions will have good contributions to the environment. It will mitigate the motorized traffic into and out of MP and the surrounding areas; reduce air pollution and noise. It will help this high density of population urbanized areas by reducing their

levels of ozone and carbon monoxide to meet air quality standards required under the 1990 Clean Air Act.

By identifying these three suggested extensions, the study tries to maximize the advantages of existing streets and railroads, minimizing the need to design and build new streets, and gives efforts to reduce the costs. Totally, there is approximately 5.17 miles length of extension, the new constructed streets including two pedestrian bridges is just about 2000 ft.

This study concentrates on the feasibility and possibility of accommodating extensions. It does not discuss other issues.

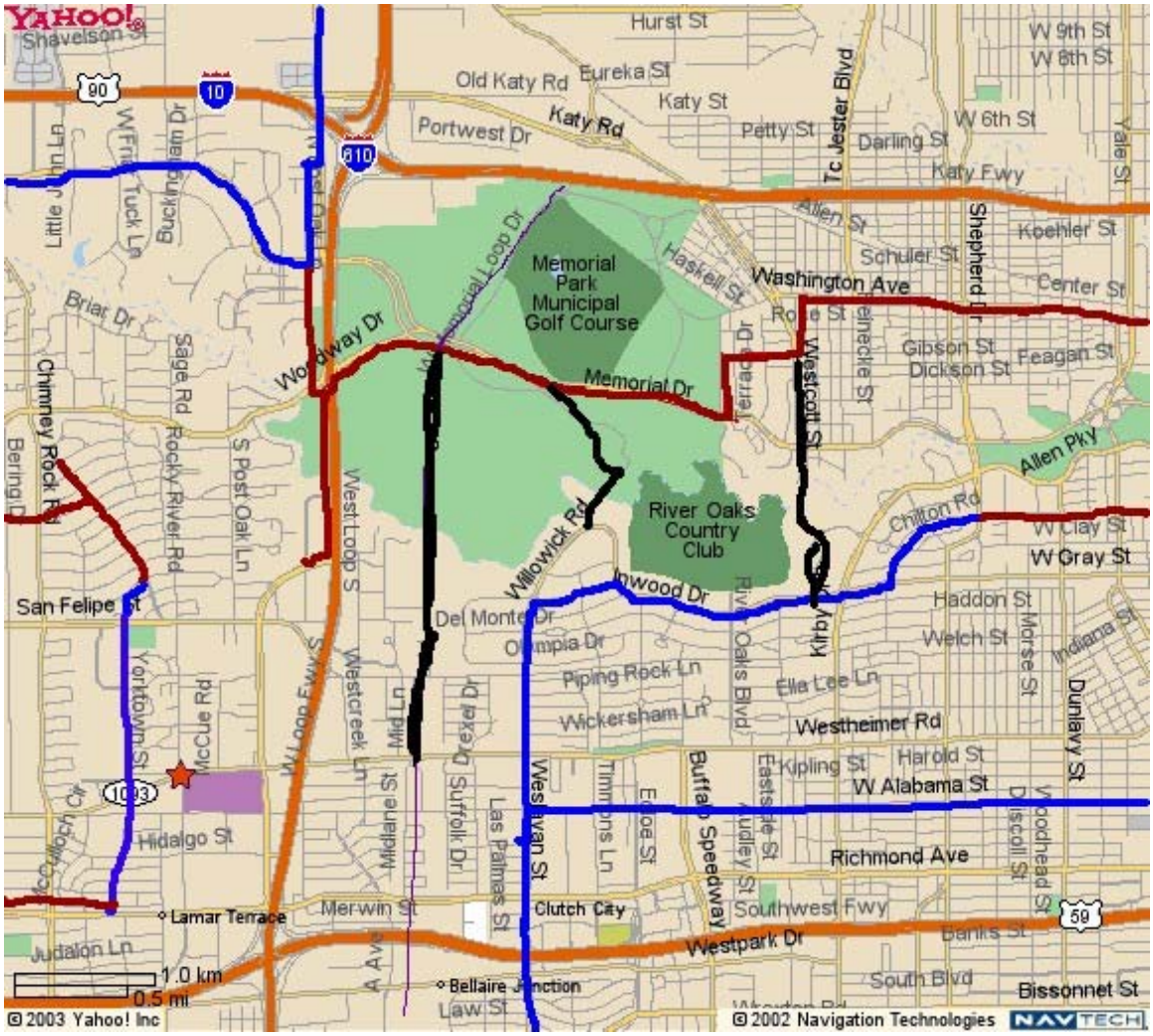
It needs to say, the safety of rails with trails is just as safe as other trails. In fact, using a rail with trail may well be significantly safer than walking or cycling next to a busy main road it may serve to keep people from walking on active rail tracks (2).

To support a safe and convenient mode of transportation for bicyclists and pedestrians, this study has outlined and examined the possibilities of accessing to MP. These three extensions are total in length 5.17 miles, and can improve accessibly in local areas and the network, benefiting many people. Hopefully, this study will improve with additional input from other engineers and professionals so as to contribute value to the strategy for enhancing the Houston Bikeway transportation network.

References:

1. **Guide for the Development of Bicycle Facilities**, 1999, America Association of State Highway and Transportation Officials
2. **Rails with Trails,** Nov, 2000, Design, Management, and Operating Characteristics of 61 Trails Along Active Rail Lines
3. **Comprehensive Bikeway Plan,** prepared for the City of Houston, 1993, Wilbur Smith Associates
4. **Trails and Greenways,** http://www.trailsandgreenways.org/resources/development/acquis/secretbook/sec-ch3.asp
5. **FHWA Course on Bicycle and Pedestrian Transportation,** http://safety.fwha.dot.gov/pedbike/univcourse/swtvc.htm
6. **Bicycle and Pedestrian Design Guidance,** U.S. DOT Federal Highway Administration, http://www.fhwa.dot.gov/environment/bikeped/design.htm

Figure 1



Source: Yahoo Map

Black Line: suggested bikeway extensions
Red Line: proposed bikeway
Blue Line: existing bikeway
Purple Line: existing rail line